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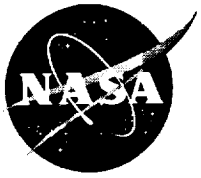

Technical Report Series on the Boreal Ecosystem-Atmosphere Study (BOREAS)

Forrest G. Hall and Jeffrey A. Newcomer, Editors

Volume 14

BOREAS AFM-06 Mean Wind Profile Data

J. Wilczak

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

June 2000

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Space Administration

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BOREAS AFM-6 Mean Wind Profile Data

James Wilczak

Summary

The BOREAS AFM-6 team from the NOAA/ETL operated a 915-MHz wind/Radio Acoustic Sounding System (RASS) profiler system in the SSA near the OJP tower from 21-May-1994 to 20-Sep-1994. The data set provides wind profiles at 38 heights, containing the variables of wind speed; wind direction; and the u-, v-, and w-components of the total wind. The data are stored in tabular ASCII files.

Table of Contents

1. Data Set Overview

1.1 Data Set Identification

BOREAS AFM-06 Mean Wind Profile Data

1.2 Data Set Introduction

The data were collected by BOReal Ecosystem-Atmospheric Study (BOREAS) Airborne Fluxes and Meteorology (AFM)-06 team during 5 months covering late spring and summer in 1994. The wind profiler data were measured by the National Oceanic and Atmospheric Administration (NOAA)/Environment Technology Laboratory (ETL) 915-MHz wind/Radio Acoustic Sounding System (RASS) profiler. The data were collected near the Southern Study Area (SSA)-Old Jack Pine (OJP) tower.

1.3 Objective/Purpose

The BOREAS field work objectives were to measure continuous hourly profiles of wind velocity and temperature in the atmospheric boundary layer (ABL) and lower troposphere, to measure the depth of the daytime convective boundary layer, and to measure the occurrence of precipitation, all using a

915-MHz radar wind/RASS profiler. The data were then to be used to document average boundary layer structure, and especially changes in boundary layer structure during the course of the boreal summer growing season.

1.4 Summary of Parameters

The AFM-06 wind profile data set includes vertical profiles of wind velocity and u-, v-, w-components of the wind.

1.5 Discussion

NOAA/ETL operated a 915-MHz wind profiling radar and surface meteorological station near the OJP site in the BOREAS SSA. These instruments ran continuously from 21-May-1994 through 20-Sep-1994.

The data provided by the wind profiler are vertical profiles of wind speed and direction and virtual temperature, as well as boundary layer depth (Zi) and the presence of precipitation. These measurements were made with 100-m vertical resolution with the lowest measurement height at 150 m above ground level (AGL). The maximum height sampled was 3850 m AGL, although on many days the maximum height of the wind measurements was in the range of 2-3 km due to weak signal strength in the region of the lower troposphere above the ABL.

1.6 Related Data Sets

BOREAS AFM-06 Mean Temperature Profile Data
BOREAS AFM-06 Boundary Layer Height Data
BOREAS AFM-06 Surface Meteorological Data

2. Investigator(s)

2.1 Investigator(s) Name and Title

Robert Banta, Brooks Martner, James Wilczak NOAA Environmental Laboratory

2.2 Title of Investigation

Outer Boundary Layer Effects on Surface Fluxes of Momentum, Heat, Moisture, and Greenhouse Gases from the Boreal Forest

2.3 Contact Information

Contact 1:
James Wilczak
NOAA/ETL
325 Broadway
Boulder, CO 80303
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jwilczak@etl.noaa.gov

Contact 2:
Jeffrey A. Newcomer
Raytheon ITSS
Code 923
NASA GSFC
Greenbelt, MD 20771
(301) 286-7858
(301) 286-0239 (fax)
Jeffrey.Newcomer@gsfc.nasa.gov

3. Theory of Measurements

The above measurements were obtained by measuring the zeroth, first, and second moments of the radar Doppler spectrum. The zeroth moment is the signal power. The range-corrected signal power can alternatively be expressed in terms of the turbulence structure parameter CN2. It is well-known that the vertical profile of CN2 exhibits a sharp peak at the midpoint of the inversion transition region, due to local mixing of relatively cool, moist boundary layer air with warmer and dryer air aloft. Our measurements of Zi were obtained from the peak value in the vertical profile of CN2 from a vertically pointing radar beam. The first moment of the Doppler spectrum is the Doppler velocity. The vertical profile of wind velocity was measured by combining the Doppler velocities measured along three radar beams: one vertical, and two oblique beams pointing at elevations of 75 degrees, oriented 90 degrees apart. The vertical profile of virtual temperature was measured using the RASS, in which an array of acoustic speakers surrounds the radar and generates a sound pulse. The radar signal reflects off of this acoustic wave front, and the measured Doppler shift indicates the velocity of the sound pulse, which is proportional to the virtual temperature of the air. The second moment of the Doppler spectrum, or spectral width, can provide a measure of the strength of the turbulence within the boundary layer. The second moment has not been directly used in the present analysis. Finally, the presence of precipitation is determined by using both signal power and the vertical velocity. Rain and snow have much greater signal power than does clear air, and nearly uniform downward velocities. Rain can be distinguished from snow by its greater reflectivity, and by its greater fall velocity. Because of the high sensitivity of the profiler, it is capable of detecting small amounts of rain that might not be measured by a traditional surface rain gauge. The profiler detects only the presence of precipitation, however, and at present cannot give a quantitative measure of rainfall amount.

4. Equipment

4.1 Sensor/Instrument Description

915-MHz wind profiling radar with RASS.

4.1.1 Collection Environment

The 915-MHz profiler was used during various ambient weather conditions that occurred at the BOREAS SSA-OJP site.

4.1.2 Source/Platform

Ground-based.

4.1.3 Source/Platform Mission Objectives

The ground supported the needed instrumentation.

4.1.4 Key Variables

Included in this data set are wind profiles at 38 heights, containing the variables of wind speed; wind direction; and the u-, v-, and w-components of the total wind.

4.1.5 Principles of Operation

Standard Doppler radar techniques.

4.1.6 Sensor/Instrument Measurement Geometry

One vertical beam, two oblique beams 15 degrees from vertical at an elevation of 75 degrees.

4.1.7 Manufacturer of Sensor/Instrument

Wind Profiler: NOAA/ETL (Contact: James Wilczak at the address found in Section 2).

4.2 Calibration

4.2.1 Specifications
None given.

4.2.1.1 Tolerance
None given.

4.2.2 Frequency of Calibration
None given.

4.2.3 Other Calibration Information
None given.

5. Data Acquisition Methods

During the course of 1 hour, the radar makes 18 cycles through each of the three radial beams, averaging for 60 seconds on each beam. These measurements require a total of 54 minutes. Prior to this, the RASS temperature profile is measured on the vertical beam during the first 5 minutes of the hour. During BOREAS, the RASS temperature observations consisted of 15 measurements, each 15 seconds in length. Each of these individual radial measurements of both wind and temperature is then quality controlled through an automated pattern recognition scheme, and then the measurements are combined into a single value of wind and temperature reported for each hour.

6. Observations

6.1 Data Notes
The wind profiler operated unattended for most of the 4-month observation period.

6.2 Field Notes
The wind profiling radar and surface meteorological stations were located at a site 1.0 km south and 1.6 km east of the SSA-OJP tower flux site. The radar site was in a clearing in the jack pine forest, with fetches (clear distances) of 200 m to the north, 500 m to the south, 150 m to the east, and 1 km to the west. Ground cover within the clearing consisted of grass, brush, and young jack pine trees, approximately 1-2 m tall.

7. Data Description

7.1 Spatial Characteristics

7.1.1 Spatial Coverage
The North American Datum of 1983 (NAD83) coordinates of the site are:

```
Lat.    =  53.91 °N
Long.   =  104.40 °W
Alt.    =  511 m above sea level
```

This is located 1.0 km south and 1.6 km east of the SSA-OJP flux tower.

7.1.2 Spatial Coverage Map
Not applicable.

7.1.3 Spatial Resolution

```
Beamwidth =  9.9 degrees (one-way, 3 dB)
Range resolution = 101 m
Range limits  = 0.112-3.889 km AGL (38 range gates)
```

7.1.4 Projection

Not applicable.

7.1.5 Grid Description

Not applicable.

7.2 Temporal Characteristics

7.2.1 Temporal Coverage

Measurements were made from 21-May-1994 through 20-Sep-1994.

7.2.2 Temporal Coverage Map

Not available.

7.2.3 Temporal Resolution

Measurements were made 15 times per hour during the period.

7.3 Data Characteristics

7.3.1 Parameter/Variable

The parameters contained in the data files on the CD-ROM are:

```
         Column Name
------------------------------
SITE_NAME
SUB_SITE
DATE_OBS
TIME_OBS
HT_ASL
WIND_SPEED
WIND_DIR
U_COMPNT
V_COMPNT
W_COMPNT
POINTS_OBLIQUE_BEAM_1
SNR_OBLIQUE_BEAM_1
POINTS_OBLIQUE_BEAM_2
SNR_OBLIQUE_BEAM_2
POINTS_VERTICAL_BEAM
SNR_VERTICAL_BEAM
NUM_LVLS
QUAL_CONTROL
CRTFCN_CODE
REVISION_DATE
```

7.3.2 Variable Description/Definition

The descriptions of the parameters contained in the data files on the CD-ROM are:

Column Name	Description
SITE_NAME	The identifier assigned to the site by BOREAS, in the format SSS-TTT-CCCCC, where SSS identifies the portion of the study area: NSA, SSA, REG, TRN, and TTT identifies the cover type for the site, 999 if unknown, and CCCCC is the identifier for site, exactly what it means will vary with site type.
SUB_SITE	The identifier assigned to the sub-site by BOREAS in the format GGGGG-IIIII, where GGGGG is the group associated with the sub-site instrument, e.g. HYD06 or STAFF, and IIIII is the identifier for sub-site, often this will refer to an instrument.
DATE_OBS	The date on which the data were collected.
TIME_OBS	The Greenwich Mean Time (GMT) when the data were collected.
HT_ASL	The height above mean sea level at which the measurements were taken.
WIND_SPEED	The wind speed.
WIND_DIR	The direction from which the wind was traveling, increasing in a clockwise direction from north.
U_COMPNT	The measured u-component of the total wind velocity
V_COMPNT	The measure v-component of the total wind velocity.
W_COMPNT	The measured w-component of the total wind velocity
POINTS_OBLIQUE_BEAM_1	The number of points in oblique beam #1.
SNR_OBLIQUE_BEAM_1	The signal to noise ratio for oblique beam #1.
POINTS_OBLIQUE_BEAM_2	The number of points in oblique beam #2.
SNR_OBLIQUE_BEAM_2	The signal to noise ratio for oblique beam #2.
POINTS_VERTICAL_BEAM	The number of points in the vertical beam.
SNR_VERTICAL_BEAM	The signal to noise ratio of the vertical beam.
NUM_LVLS	The number of height levels in the atmospheric profile.
QUAL_CONTROL	A quality control parameter. A value of 0 or 1 can be considered good. A value of 7 or 8 indicates suspect or bad data. QC Code Definition: 0 --- Valid 1 --- Estimated 7 --- Suspect 8 --- Invalid
CRTFCN_CODE	The BOREAS certification level of the data. Examples are CPI (Checked by PI), CGR (Certified by Group), PRE (Preliminary), and CPI-??? (CPI but questionable).
REVISION_DATE	The most recent date when the information in the referenced data base table record was revised.

For the columns WIND_SPEED, POINTS_OBLIQUE_BEAM_1, SNR_OBLIQUE_BEAM_1, POINTS_OBLIQUE_BEAM_2, SNR_OBLIQUE_BEAM_2, POINTS_VERTICAL_BEAM, SNR_VERTICAL_BEAM the following data definitions apply:

```
Data Code Definition:   -940 --- Failed QC,
                        -950 --- Failed Consensus
                        -960 --- Exceeded Nyquist Vel.
                        -980 --- Flagged by Reviewer
                        -999 --- Missing or Not Reported.
```

7.3.3 Unit of Measurement

The measurement units for the parameters contained in the data files on the CD-ROM are:

Column Name	Units
SITE_NAME	[none]
SUB_SITE	[none]
DATE_OBS	[DD-MON-YY]
TIME_OBS	[HHMM GMT]
HT_ASL	[meters]
WIND_SPEED	[meters][second^-1]
WIND_DIR	[degrees]
U_COMPNT	[meters][second^-1]
V_COMPNT	[meters][second^-1]
W_COMPNT	[meters][second^-1]
POINTS_OBLIQUE_BEAM_1	[counts]
SNR_OBLIQUE_BEAM_1	[unitless]
POINTS_OBLIQUE_BEAM_2	[counts]
SNR_OBLIQUE_BEAM_2	[unitless]
POINTS_VERTICAL_BEAM	[counts]
SNR_VERTICAL_BEAM	[unitless]
NUM_LVLS	[unitless]
QUAL_CONTROL	[unitless]
CRTFCN_CODE	[none]
REVISION_DATE	[DD-MON-YY]

7.3.4 Data Source

The sources of the parameter values contained in the data files on the CD-ROM are:

Column Name	Data Source
SITE_NAME	[Assigned by BORIS]
SUB_SITE	[Assigned by BORIS]
DATE_OBS	[Supplied by NOAA/ETL]
TIME_OBS	[Supplied by NOAA/ETL]
HT_ASL	[Supplied by NOAA/ETL]
WIND_SPEED	[Supplied by NOAA/ETL]
WIND_DIR	[Supplied by NOAA/ETL]
U_COMPNT	[Supplied by NOAA/ETL]
V_COMPNT	[Supplied by NOAA/ETL]
W_COMPNT	[Supplied by NOAA/ETL]
POINTS_OBLIQUE_BEAM_1	[Supplied by NOAA/ETL]
SNR_OBLIQUE_BEAM_1	[Supplied by NOAA/ETL]
POINTS_OBLIQUE_BEAM_2	[Supplied by NOAA/ETL]

SNR_OBLIQUE_BEAM_2	[Supplied by NOAA/ETL]
POINTS_VERTICAL_BEAM	[Supplied by NOAA/ETL]
SNR_VERTICAL_BEAM	[Supplied by NOAA/ETL]
NUM_LVLS	[Supplied by NOAA/ETL]
QUAL_CONTROL	[Supplied by NOAA/ETL]
CRTFCN_CODE	[Assigned by BORIS]
REVISION_DATE	[Assigned by BORIS]

7.3.5 Data Range

The following table gives information about the parameter values found in the data files on the CD-ROM.

Column Name	Minimum Data Value	Maximum Data Value	Missng Data Value	Unrel Data Value	Below Detect Limit	Data Not Cllctd
SITE_NAME	SSA-OJP-RDR01	SSA-OJP-RDR01	None	None	None	None
SUB_SITE	AFM06-RDR01	AFM06-RDR01	None	None	None	None
DATE_OBS	21-MAY-94	21-SEP-94	None	None	None	None
TIME_OBS	0	2300	None	None	None	None
HT_ASL	663	4400	None	None	None	None
WIND_SPEED	-980	58.8	None	None	None	None
WIND_DIR	-980	360	None	None	None	None
U_COMPNT	-17.31	26.98	-999	None	None	None
V_COMPNT	-23.9	23.89	-999	None	None	None
W_COMPNT	-10.9	10.82	-999	None	None	None
POINTS_OBLIQUE_BEAM_1	-950	19	None	None	None	None
SNR_OBLIQUE_BEAM_1	-950	79	None	None	None	None
POINTS_OBLIQUE_BEAM_2	-950	19	None	None	None	None
SNR_OBLIQUE_BEAM_2	-950	155	None	None	None	None
POINTS_VERTICAL_BEAM	-950	19	None	None	None	None
SNR_VERTICAL_BEAM	-950	56	None	None	None	None
NUM_LVLS	38	38	None	None	None	None
QUAL_CONTROL	0	8	None	None	None	None
CRTFCN_CODE	CPI	CPI	None	None	None	None
REVISION_DATE	21-AUG-96	22-AUG-96	None	None	None	None

Minimum Data Value -- The minimum value found in the column.
Maximum Data Value -- The maximum value found in the column.
Missng Data Value -- The value that indicates missing data. This is used to indicate that an attempt was made to determine the parameter value, but the attempt was unsuccessful.
Unrel Data Value -- The value that indicates unreliable data. This is used to indicate an attempt was made to determine the parameter value, but the value was deemed to be unreliable by the analysis personnel.
Below Detect Limit -- The value that indicates parameter values below the instruments detection limits. This is used to indicate that an attempt was made to determine the parameter value, but the analysis personnel determined that the parameter value was below the detection limit of the instrumentation.

```
Data Not Cllctd     -- This value indicates that no attempt was made to
                       determine the parameter value.  This usually
                       indicates that BORIS combined several similar but
                       not identical data sets into the same data base table
                       but this particular science team did not
                       measure that parameter.

Blank -- Indicates that blank spaces are used to denote that type of value.
N/A   -- Indicates that the value is not applicable to the respective column.
None  -- Indicates that no values of that sort were found in the column.
-------------------------------------------------------------------------------
```

7.4 Sample Data Record

The following is a wrapped version of a data record from a sample data file on the CD-ROM.

```
SITE_NAME,SUB_SITE,DATE_OBS,TIME_OBS,HT_ASL,WIND_SPEED,WIND_DIR,U_COMPNT,
V_COMPNT,W_COMPNT,POINTS_OBLIQUE_BEAM_1,SNR_OBLIQUE_BEAM_1,POINTS_OBLIQUE_BEAM_2,
SNR_OBLIQUE_BEAM_2,POINTS_VERTICAL_BEAM,SNR_VERTICAL_BEAM,NUM_LVLS,QUAL_CONTROL,
CRTFCN_CODE,REVISION_DATE
'SSA-OJP-RDR01','AFM06-RDR01',23-JUN-94,0,663,5.4,245,4.89,2.27,.09,18,7,-18,12,
18,10,38,1,'CPI',22-AUG-96
'SSA-OJP-RDR01','AFM06-RDR01',23-JUN-94,0,764,4.8,248,4.47,1.77,.03,18,10,-18,
15,18,12,38,1,'CPI',22-AUG-96
'SSA-OJP-RDR01','AFM06-RDR01',23-JUN-94,0,966,4.5,251,4.26,1.47,-.05,18,10,18,
14,18,11,38,0,'CPI',22-AUG-96
```

8. Data Organization

8.1 Data Granularity

The smallest unit of data tracked by the BOREAS Information System (BORIS) was the data collected at a given site on a given date.

8.2 Data Format(s)

The Compact Disk-Read-Only Memory (CD-ROM) files contain American Standard Code for Information Interchange (ASCII) numerical and character fields of varying length separated by commas. The character fields are enclosed with single apostrophe marks. There are no spaces between the fields.

Each data file on the CD-ROM has four header lines of Hyper-Text Markup Language (HTML) code at the top. When viewed with a Web browser, this code displays header information (data set title, location, date, acknowledgments, etc.) and a series of HTML links to associated data files and related data sets. Line 5 of each data file is a list of the column names, and line 6 and following lines contain the actual data.

9. Data Manipulations

9.1 Formulae

9.1.1 Derivation Techniques and Algorithms
None given.

9.2 Data Processing Sequence

9.2.1 Processing Steps
During the course of 1 hour, the radar makes 18 cycles through each of the three radial beams, averaging for 60 seconds on each beam. These measurements require a total of 54 minutes. Prior to this, the RASS temperature profile is measured on the vertical beam during the first 5 minutes of the hour. During BOREAS, the RASS temperature observations consisted of 15 measurements, each 15 seconds in length. Each of these individual radial measurements of both wind and temperature is then quality controlled through an automated pattern recognition scheme, and then the measurements are combined into a single value of wind and temperature reported for each hour.

9.2.2 Processing Changes
None given.

9.3 Calculations

9.3.1 Special Corrections/Adjustments
None given.

9.3.2 Calculated Variables
None given.

9.4 Graphs and Plots
None given.

10. Errors

10.1 Sources of Error
During spring and autumn seasons, it is possible that the profiler winds can be contaminated by the presence of migrating birds. These errors are now well understood, and can be recognized from large values of signal power, spectral width, and sudden changes in wind speed occurring near sunset and sunrise. Periods of contaminated winds have been hand edited from the data set. Birds do not directly affect RASS temperatures, although they could have a secondary effect by contaminating vertical velocity, which is used to correct RASS temperatures. No corrections for contaminated vertical velocities on RASS have been made.

10.2 Quality Assessment

10.2.1 Data Validation by Source
See Section 10.2.3.

10.2.2 Confidence Level/Accuracy Judgment
See Section 10.2.3.

10.2.3 Measurement Error for Parameters

During the first 3 days and last 3 days of operation, ETL personnel were at the site taking balloon intercomparisons. These assessments have shown typical values of agreement of the balloons with profiler, typically 1-2 m/s and 1 deg C. Wind velocity differences between 915-MHz wind profilers and precision research aircraft have been found to be on the order of 0.9 m/s.

10.2.4 Additional Quality Assessments

None given.

10.2.5 Data Verification by Data Center

BORIS personnel verified that the delivered data agreed with the information provided by the AFM-06 team.

11. Notes

11.1 Limitations of the Data

None given.

11.2 Known Problems with the Data

None given.

11.3 Usage Guidance

None given.

11.4 Other Relevant Information

None given.

12. Application of the Data Set

These data would be used to study and model wind motion at various levels of the atmosphere above the site.

13. Future Modifications and Plans

None given.

14. Software

14.1 Software Description

None given.

14.2 Software Access

None given.

15. Data Access

The mean wind profile data are available from the Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

15.1 Contact Information

For BOREAS data and documentation please contact:

ORNL DAAC User Services
Oak Ridge National Laboratory
P.O. Box 2008 MS-6407
Oak Ridge, TN 37831-6407
Phone: (423) 241-3952
Fax: (423) 574-4665
E-mail: ornldaac@ornl.gov or ornl@eos.nasa.gov

15.2 Data Center Identification

Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) for Biogeochemical Dynamics http://www-eosdis.ornl.gov/ [Internet Link].

15.3 Procedures for Obtaining Data

Users may obtain data directly through the ORNL DAAC online search and order system [http://www-eosdis.ornl.gov/] and the anonymous FTP site [ftp://www-eosdis.ornl.gov/data/] or by contacting User Services by electronic mail, telephone, fax, letter, or personal visit using the contact information in Section 15.1.

15.4 Data Center Status/Plans

The ORNL DAAC is the primary source for BOREAS field measurement, image, GIS, and hardcopy data products. The BOREAS CD-ROM and data referenced or listed in inventories on the CD-ROM are available from the ORNL DAAC.

16. Output Products and Availability

16.1 Tape Products

None.

16.2 Film Products

None.

16.3 Other Products

These data are available on the BOREAS CD-ROM series.

17. References

17.1 Platform/Sensor/Instrument/Data Processing Documentation

Angevine, W.M. and J.I. MacPherson. 1995. Comparison of wind profiler and aircraft wind measurements at Chebogue Point, Nova Scotia. J. Atmos. Ocean. Technol. 12(2), 421 426.

Angevine, W.M. and W.L. Ecklund. 1994. Errors in radio acoustic sounding of temperature. J. Atmos. Ocean. Technol. 11, 42 49.

Gage, K.S., C.R. Williams, and W.L. Ecklund. 1994. UHF wind profilers: A new tool for diagnosing tropical convective cloud systems. Bull. Amer. Meteor. Soc. 75, 2289 2294.

Gossard, E.E. and R.G. Strauch. 1983. Radar observations of clear air and clouds. Elsevier, Amsterdam, 280 pp.

May, P.T., K.P. Moran, and R.G. Strauch. 1989. The accuracy of RASS temperature measurements. J. Appl. Meteor. 28, 1329 1335.

Moran, K.P. and R.G. Strauch. 1994. The accuracy of RASS temperature measurements corrected for vertical air motion. J. Atmos. Ocean. Technol. 11, 995 1001.

Peters, G. 1994. Correction of turbulence induced errors of RASS temperature profiles. Proc., 3rd Intl Symp. on Tropospheric Profiling: Needs and Technologies, Hamburg, Max Planck-Gesellschaft zur Förderung der Wissenschaften, pp. 266 268.

17.2 Journal Articles and Study Reports

Angevine, W.M., A.B. White, and S.K. Avery. 1994b. Boundary-layer depth and entrainment zone characterization with a boundary-layer profiler. Boundary-Layer Meteorol. 68, 375 385.

May, P.T. and J.M. Wilczak. 1993. Diurnal and seasonal variations of boundary layer structure observed with a radar wind profiler and RASS. Mon. Wea. Rev. 121, 673 682.

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17.3 Archive/DBMS Usage Documentation

None.

18. Glossary of Terms

None given.

19. List of Acronyms

ABL	- Atmospheric Boundary Layer
AFM	- Airborne Fluxes and Meteorology
ASCII	- American Standard Code for Information Interchange
BOREAS	- BOReal Ecosystem-Atmosphere Study
BORIS	- BOREAS Information System
CD-ROM	- Compact Disk - Read Only Memory
DAAC	- Distributed Active Archive Center
EOS	- Earth Observing System
EOSDIS	- EOS Data and Information System
ETL	- Environment Technology Laboratory
GIS	- Geographic Information System
GMT	- Greenwich Mean Time
GSFC	- Goddard Space Flight Center
NAD83	- North American Data of 1983
NASA	- National Aeronautics and Space Administration
NOAA	- National Oceanic and Atmospheric Administration
NSA	- Northern Study Area
OJP	- Old Jack Pine
ORNL	- Oak Ridge National Laboratory
PANP	- Prince Albert National Park

RASS - Radio Acoustic Sounding System
SSA - Southern Study Area
URL - Uniform Resource Locator

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The BOREAS AFM-6 team from the NOAA/ETL operated a 915-MHz wind/Radio Acoustic Sounding System (RASS) profiler system in the SSA near the OJP tower from 21-May-1994 to 20-Sep-1994. The data set provides wind profiles at 38 heights, containing the variables of wind speed; wind direction; and the u-, v-, and w-components of the total wind. The data are stored in tabular ASCII files.

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